

# Indiana Traffic Safety Facts 2004

## Occupant Protection

<http://www.in.gov/cji>

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states in the nation  
that have primary  
safety belt laws that  
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occupants.**

All fatal crash information contained within this fact sheet was obtained from the Fatality Analysis Reporting System (FARS) Web-Based Encyclopedia provided by the National Highway Traffic Safety Administration (NHTSA). It is available online at <http://www-fars.nhtsa.dot.gov/>. All terms and definitions presented in this fact sheet that refer to data in the FARS database were extracted from the NHTSA 2004 Occupant Protection Fact Sheet and the definitions that NHTSA applies to the variables in the FARS database. "Light trucks" in the FARS database are as defined by NHTSA and include utility vehicles, vans, pickup trucks, and other light trucks. Passenger vehicles in FARS are also as defined by NHTSA and include both passenger cars and all vehicles in the light truck category.

### **Restraint Use Laws**

In Indiana in 2004, all front seat occupants (regardless of age) and all child occupants under the age of 12 (regardless of seating position) in passenger cars were required to wear a safety restraint while the vehicle was in forward motion, and a primary enforcement law (passed in 1998) allowed law enforcement officers to stop a vehicle and write a citation based on a safety belt violation. However, these occupants were exempt from the safety restraint law in the following situations: medical reasons; children covered by Restraint System Laws (IC 9-19-11); commercial or U.S. Postal Service delivery vehicles; newspaper route carriers or bundle haulers; driver examiners; and vehicles not classified as passenger motor vehicles. Indiana Code excludes trucks, tractors and recreational vehicles from the definition of a passenger motor vehicle for the purposes of passenger restraint systems, so the above described occupants were exempt if traveling in these vehicles.<sup>1</sup> However, Indiana's child safety restraint system law in 2004 required children under the age of four to be in a child safety restraint device (rather than just a safety belt) with only the exception of passengers in one of the following: school bus; taxicab; rental vehicle leased for 30 days or less; ambulance; out of state vehicle unless operated in Indiana for more than 60 days; public passenger bus; a vehicle owned or leased by a religious or not-for-profit youth organization that carries more than nine individuals; antique motor vehicle; motorcycle; law enforcement vehicle; or any motor vehicle that is being used in an emergency. Trucks were not included in the list of child safety restraint system exemptions.<sup>2</sup>

Indiana and Georgia were the only two states in the nation in 2004 that had primary safety belt laws that excluded truck occupants from their law. However, in Georgia, there at least existed a law that required all occupants under the age of 18 to be restrained in all vehicle types. While children under the age of 4 in Indiana had to be in a child safety restraint device while traveling in all vehicle types, children 4 and older could legally travel in a truck unrestrained (including a pickup truck bed) due to the exemptions of the safety restraint law. Thankfully, a new 2005 law is scheduled to change the restraint requirements for children, but unfortunately the truck exemption will still exist for adults.

The data presented in this fact sheet pertains to 2004, when occupants were riding under the old law. The new law will go into effect on July 1, 2005 and requires all children under the age of eight (with no truck exemption) to ride properly fastened by a child safety restraint instead of just a safety belt, which can include a belt-positioning booster seat. Children at least 8 years old all the way up until their 16<sup>th</sup> birthday will then be required to ride properly restrained in a safety belt (or a child restraint system), also without the truck exemption.

<sup>1</sup> Information gathered from the Indiana Code (IC 9-19-10-1 Passenger Restraint Systems).

<sup>2</sup> Information gathered from the Indiana Code (IC 9-19-11-1 Passenger Restraint Systems for Children).

**Research indicates that wearing a safety restraint reduces the chance of fatal injury in a motor vehicle crash by 45 percent in passenger cars and 60 percent in light trucks.**

**Nearly 1 out of 4 male drivers observed in the June 2004 survey was not wearing a safety belt.**

### Restraint System Effectiveness

Research has found that lap / shoulder safety belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. For light truck occupants, safety belts reduce the risk of fatal injury by 60 percent, and moderate-to-critical injury by 65 percent. Ejection from the vehicle is one of the most injurious events that can happen to a person in a crash, and safety belts are effective in preventing total ejections.<sup>3</sup> In Indiana in 2004, 143 of the 712 fatally injured passenger vehicle occupants had been totally ejected from the vehicle, and 121 of these 143 totally ejected passenger vehicle fatalities had known restraint usage. Of these 121, only 5.0% were restrained.

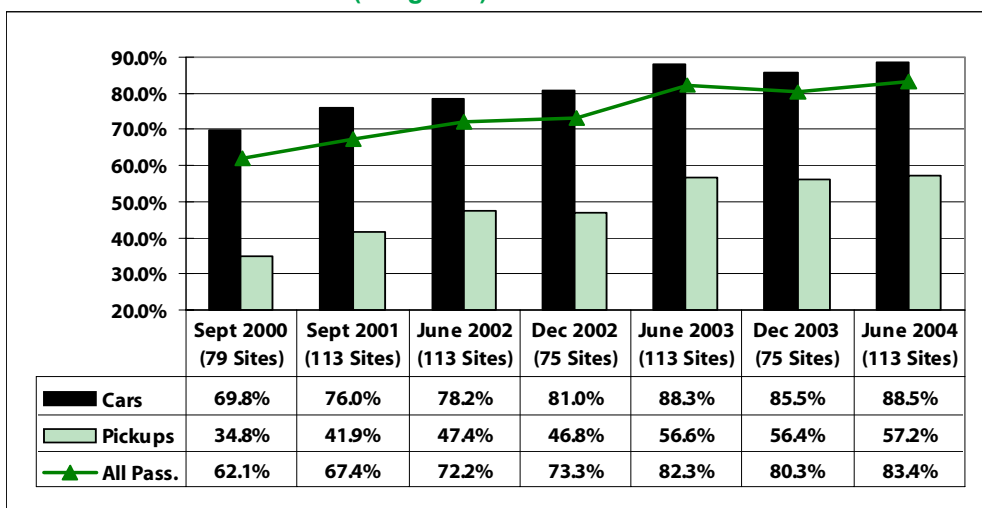
### Restraint System Use - Observational Survey Results

In 2004, NHTSA conducted the National Occupant Protection Use Survey (NOPUS). The overall observed shoulder belt use rate was 80 percent in 2004, compared to 79 percent observed in 2003, 75 percent in 2002, 73 percent in 2001, 71 percent in 2000, and 67 percent in 1999.<sup>4</sup>

The results of the Indiana Roadside Observation Survey of Safety Belt Use and Motorcycle Helmet Use in Indiana, June 2004 depicted an overall statewide safety belt usage rate of 83.4 percent for front seat, outboard occupants. This represented a 16 percent increase from the 67.4 percent usage rate recorded in September 2001, and the highest usage rate recorded by the state. Occupants of passenger cars were properly restrained in 88.5 percent of the observations, compared to only 57.2 percent of pickup truck occupants. The lowest safety belt usage rate recorded (39.6 percent) was for occupants of pickup trucks on rural local roads, followed by a 44.3 percent usage rate also for pickup truck occupants on rural collector roads.

Gender differences found in the survey were consistent with findings of previous years; females typically have higher safety belt use rates than males. Female drivers had an unweighted usage rate of 91.2 percent and male drivers had an unweighted usage rate of 76.3 percent. Nearly one out of four male drivers observed in the June 2004 survey was not wearing a safety belt. Female front seat passengers had a usage rate of 89.4 percent, compared to the 75.4 percent observed for male front seat passengers. The State's overall safety belt usage rate continues to be pulled down by these safety belt nonusers.<sup>5</sup>

**Figure 1. Observational Safety Belt Usage Rates by Vehicle Type September 2000 - June 2004 (Weighted)**



<sup>3</sup> This information was taken from the National Highway Traffic Safety Administration's "Traffic Safety Facts 2004, Occupant Protection." This document is available online at <http://www.nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2004/809909.pdf>.

<sup>4</sup> NHTSA Traffic Safety Facts 2004

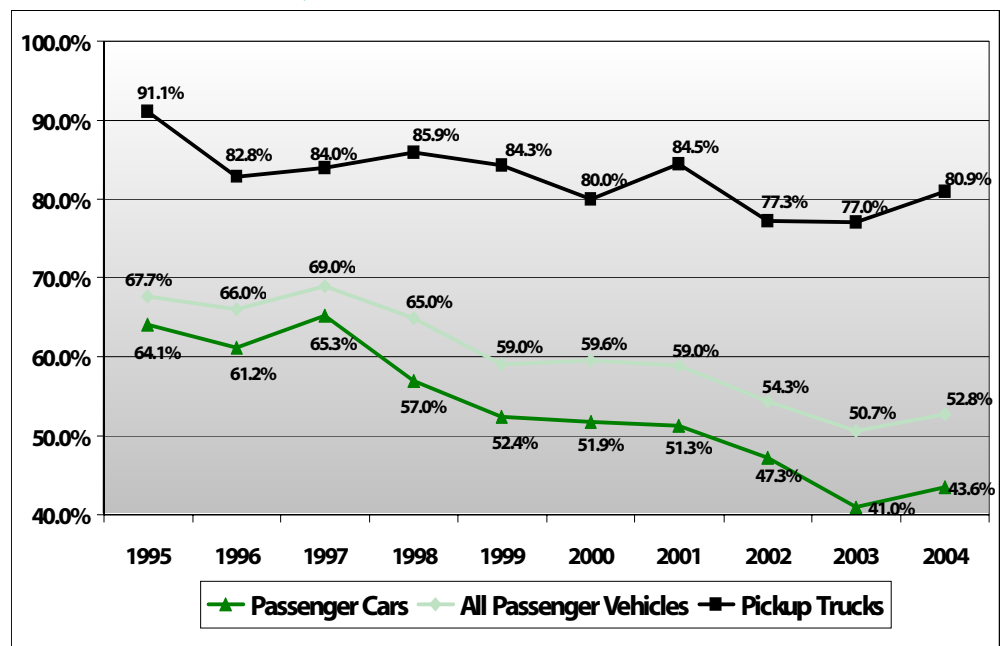
<sup>5</sup> This information was taken from "The Indiana Roadside Observation Survey of Safety Belt Use and Motorcycle Helmet Use, June 2004" prepared by the Center for the Advancement of Transportation Safety at Purdue University on behalf of the Indiana Criminal Justice Institute.

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### Occupant Fatalities by Restraint Use - A Historical Perspective

While observational survey data in Indiana has provided evidence for increasing restraint usage rates, improvements are also evident in the fatal crash data in the FARS database. In 2004, 712 occupants of passenger vehicles (passenger cars, utility vehicles, vans, pickup trucks, and other light trucks) were killed in motor vehicle traffic crashes in Indiana, representing 75.2 percent of the 947 traffic fatalities reported for the year. Of the 712 passenger vehicle occupant fatalities in 2004, restraint use was unknown for 98 (13.8 percent). Of the 614 passenger vehicle occupant fatalities for which restraint use was known, 324 (52.8 percent) were unrestrained. This rate was a dramatic decrease from the 67.7 percent in 1995. A decade low of 50.7 percent was achieved in 2003. If everyone traveling in a passenger vehicle wore a safety belt, passenger vehicle occupant fatalities would very likely decrease, and 100 percent of all fatalities in the FARS database would be restrained (even in crashes in which a restraint system could not prevent death). Until 100 percent of all of Indiana's passenger vehicle fatalities are restrained, loss of life is taking place that could have potentially been prevented.

**Figure 2. Percentage\* of Indiana Passenger Vehicle Occupant Fatalities Unrestrained, 1995-2004**



\*Percent unrestrained is calculated only from those occupants with known restraint usage.

### 2004 Occupant Fatalities by Age, Gender, and Restraint Use

The data provided in Table 1 illustrates restraint use by age and gender among killed occupants of passenger vehicles in 2004 crashes. Of the 99 passenger vehicle occupant fatalities age 25-34 with known restraint usage, 66 (66.7 percent) were unrestrained, the highest rate for any age group. Of the 75 passenger vehicle occupant fatalities age 45-54 with known restraint usage, 47 (62.7 percent) were unrestrained, the second-highest rate for any age group. Finally, of the 68 passenger vehicle occupant fatalities age 21-24 with known restraint usage, 41 (60.3 percent) were unrestrained (the third-highest for any age group). Consistent with the observational survey data, the percentage of male passenger vehicle occupants fatally injured in vehicle crashes that were unrestrained in 2004 (59.8 percent) was higher than the percentage of killed female passenger vehicle occupants unrestrained at the time of their crash (39.8 percent). Both percentages reflected slight increases from 2003.

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of females.**

Table 1. Restraint Use of Indiana Occupant Fatalities in Passenger Vehicles by Age and Gender, 2004

Age Group (Years)	Restraint Use					% of Known Unrestrained*
	Unrestrained	Restrained	Unknown	Total	Total with Known Restraint Usage	
Killed Male Occupants						
0-4	1	5	0	6	6	16.7%
5-9	3	2	0	5	5	60.0%
10-15	3	5	2	10	8	37.5%
16-20	42	25	14	81	67	62.7%
21-24	32	19	11	62	51	62.7%
25-34	47	18	17	82	65	72.3%
35-44	28	19	9	56	47	59.6%
45-54	38	20	8	66	58	65.5%
55-64	18	14	2	34	32	56.3%
65-74	16	10	3	29	26	61.5%
75+	10	23	2	35	33	30.3%
Unknown	0	0	1	1	0	N/A
Total	238	160	69	467	398	59.8%
Killed Female Occupants						
0-4	4	3	0	7	7	57.1%
5-9	0	1	0	1	1	0.0%
10-15	4	6	2	12	10	40.0%
16-20	14	25	7	46	39	35.9%
21-24	9	8	7	24	17	52.9%
25-34	19	15	3	37	34	55.9%
35-44	10	11	2	23	21	47.6%
45-54	9	8	3	20	17	52.9%
55-64	7	12	4	23	19	36.8%
65-74	6	10	1	17	16	37.5%
75+	4	31	0	35	35	11.4%
Unknown	0	0	0	0	0	N/A
Total	86	130	29	245	216	39.8%
All Occupants (TOTAL)						
0-4	5	8	0	13	13	38.5%
5-9	3	3	0	6	6	50.0%
10-15	7	11	4	22	18	38.9%
16-20	56	50	21	127	106	52.8%
21-24	41	27	18	86	68	60.3%
25-34	66	33	20	119	99	66.7%
35-44	38	30	11	79	68	55.9%
45-54	47	28	11	86	75	62.7%
55-64	25	26	6	57	51	49.0%
65-74	22	20	4	46	42	52.4%
75+	14	54	2	70	68	20.6%
Unknown	0	0	1	1	0	N/A
Total	324	290	98	712	614	52.8%

(Occupants = Drivers and Passengers of Passenger Vehicles)

\*Percent unrestrained is calculated only from those occupants with **known** restraint usage.**2004 Driver and Occupant Fatalities by Vehicle Type and Restraint Use**

A total of 513 passenger vehicle drivers were killed in traffic crashes in 2004. Among the 443 passenger vehicle driver fatalities for which restraint use was known, 79.1 percent of the drivers of pickup trucks killed were unrestrained, compared to 64.7 percent for SUVs, 48.4 percent for vans, and 42.9 percent for passenger cars.

A total of 199 passenger vehicle passengers (including occupants of unknown person type) were killed in traffic crashes in 2004. Among the 171 passenger vehicle passenger fatalities for which restraint use was known, 87.5 percent of the drivers of pickup trucks killed were

**80.9% of all pickup truck occupant fatalities in Indiana in 2004 were unrestrained, compared to 43.6% for passenger cars.**

unrestrained, compared to 63.6 percent for SUVs, 50.0 percent for vans, and 45.2 percent for passenger cars.

Overall, killed occupants (drivers and passengers) of pickup trucks had the highest rate of unrestraint at 80.9 percent, compared to 64.5 percent for SUVs, 48.8 percent for vans, and 43.6 percent for passenger cars.

**Table 2. Restraint Use of Indiana Occupant Fatalities in Passenger Vehicles by Vehicle Type and Person Type, 2004**

Type of Passenger Vehicle	Restraint Use					
	Unrestrained	Restrained	Unknown	Total	Total with Known Restraint Usage	% of Known Unrestrained
Drivers Killed						
Passenger Cars	118	157	41	316	275	42.9%
Pickup Trucks	68	18	13	99	86	79.1%
Sport Utility Vehicles	33	18	6	57	51	64.7%
Vans	15	16	10	41	31	48.4%
Total	234	209	70	513	443	52.8%
Passengers Killed (Includes Occupants of Unknown Person Type)						
Passenger Cars	56	68	18	142	124	45.2%
Pickup Trucks	21	3	2	26	24	87.5%
Sport Utility Vehicles	7	4	5	16	11	63.6%
Vans	6	6	3	15	12	50.0%
Total	90	81	28	199	171	52.6%
All Passenger Vehicle Occupants (TOTAL)						
Passenger Cars	174	225	59	458	399	43.6%
Pickup Trucks	89	21	15	125	110	80.9%
Sport Utility Vehicles	40	22	11	73	62	64.5%
Vans	21	22	13	56	43	48.8%
Total	324	290	98	712	614	52.8%

\*Percent unrestrained is calculated only from those occupants with known restraint usage.

### 2004 Children

Research on the effectiveness of child safety seats has found them to reduce fatal injury by 71 percent for infants (younger than 1 year old) and by 54 percent for toddlers (1-4 years old) in passenger cars. For infants and toddlers in light trucks, the corresponding reductions are 54 percent and 59 percent, respectively.<sup>6</sup> Additionally, even though Indiana law did not require it in 2004, best safety practice would be to keep children in a booster seat until the vehicle's safety belt fits them properly (usually 4'9" or 80 lbs.). This is because vehicle manufacturers design their safety restraint systems to accommodate an average-size adult. Careful review of an owner's manual reveals that the use of child safety seats and booster seats are necessary to safely restrain child occupants. A child wearing a lap and shoulder belt could be in serious danger if the belt is not correctly positioned. Since the child's knees do not bend over the edge of the vehicle's seat, he/she will slouch down allowing the legs to be more comfortably positioned and the vehicle lap belt will ride up. In this position, soft tissue and internal organs, rather than the hipbones, will absorb the impact of the crash. An improperly fitting shoulder belt will not only be uncomfortable for a child (causing many children to put the shoulder strap behind his or her back), during a crash, an incorrectly adjusted shoulder belt can cause severe neck and spine injuries, paralysis and death. A booster seat can prevent injuries like these from occurring by raising the child up into a proper position and keeping the safety belt positioned over the strongest points of the body, the shoulders and hips. Throughout 2004 in Indiana, once children reached the age of four, they were no longer required to be in a child safety restraint device, but the new law changed this as of July 1, 2005.

<sup>6</sup> This information was taken from the National Highway Traffic Safety Administration's "Traffic Safety Facts 2004, Occupant Protection." This document is available online at <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/>



In Indiana in 2004, 16 child passenger vehicle occupants under the age of eight were fatally injured in vehicle crashes (see Table 3). This represents a decrease of 1 fatality from 2003 and 9 more than occurred in 2002 for this same age group. In 2004, 6 of the 16 killed passenger vehicle occupants under the age of 8 were unrestrained and 10 were restrained. An increase in the number of child passenger fatalities under the age of 5 is also notable from 2002 through 2004. In 2002, 4 passenger vehicle occupants under the age of five were fatally injured in vehicle crashes, in 2003 this increased to 11 fatalities for the same age group and for 2004, the number killed under the age of 5 increased to 13 (5 of them were unrestrained).

**Sixteen children under the age of 8 were killed in passenger vehicles in Indiana in 2004. Six of them were unrestrained.**

**Table 3. Fatally Injured Child Passenger Vehicle Occupants by Age and Type of Restraint Used for Indiana, 2004**

Restraint System-Use	Up To One Year	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	Total
Not Restrained	0	2	0	3	0	0	1	0	6
Lap/Shoulder Belt	0	0	0	0	0	1	0	1	2
Child Safety Seat	2	3	1	1	0	0	0	0	7
Child Safety Seat Used Improperly	1	0	0	0	0	0	0	0	1
<b>Total</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>16</b>

### Conclusion

Indiana would achieve higher usage rates with a primary safety belt law that included all vehicle types and all occupants in all seating positions. Continuing to exclude vehicles registered as pickup trucks from the safety belt law permits occupants in approximately 21 percent of the registered vehicles on the roadway to legally ride unrestrained. In 2004 there were 89 unrestrained occupant pickup truck fatalities. Had all of these occupants been properly belted, an estimated 40 lives could have been saved in 2004.

The new child restraint laws that take effect on July 1, 2005 should have a substantial and positive impact on the number of child passenger vehicle fatalities on Indiana roadways, given that there were 15 unrestrained fatalities age 0 to 15 in 2004. Continued increased awareness on the part of parents to this topic is crucial. They need to know that an improperly fitting safety belt could kill their child by rupturing internal organs or causing irreparable spinal cord damage.

Safety restraints should be required for everyone inside of a passenger motor vehicle in forward motion on Indiana's roadways. Exceptions to the child restraint law for out-of-state vehicles, taxicabs and rental vehicles are illogical. Every life is important, no matter what type of vehicle the person is in, or where he or she is sitting in that vehicle.

*This publication was prepared on behalf of the Indiana Criminal Justice Institute by Purdue University's Center for the Advancement of Transportation Safety. All fatal crash information contained within was gathered from the Fatality Analysis Reporting System (FARS) Web-Based Encyclopedia provided by the National Highway Traffic Safety Administration (NHTSA) available at <http://www.fars.nhtsa.dot.gov>. All figures are considered current as of September 27, 2005. Please direct any questions concerning data in this document to the Center for the Advancement of Transportation Safety, Purdue University, 1291-F Cumberland Ave., West Lafayette, IN 47906-1385, 765-494-7038.*